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**PATENT**  
**YOR19960184 IBM-219**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of	:	D.Y.Shih, et al.
Serial Number	:	09/254,769
Filing Date	:	March 11, 1999
Examiner	:	V. Nguyen
Group Art Unit	:	2829
For	:	WAFER SCALE HIGH DENSITY PROBE ASSEMBLY, APPARATUS FOR USE THEREOF AND METHODS OF FABRICATION THEREOF

Honorable Commissioner of Patents  
and Trademarks  
Post Office Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to the Official Action dated April 8, 2004, please consider the following remarks with respect to the above-identified application as follows:

**REMARKS**

Applicants have amended the form of claims 8 and 32 to reflect proper dependency. The objection as to improper "antecedent basis" with respect to claims 36 and 49 has been corrected.

In answer to the Examiner's objection as to claim 60, said claim is merely claiming a plurality (i.e., more than one) of the structures defined in, for example, claim 1.

The present invention relates to a method for making an inter-connector to couple an electric module to a circuit board. The invention provides a probe structure that is an integral part of the fan-out wiring on the test substrate or other printed wiring means to minimize the electrical conductor length as well as contact resistance of the probe interface. The probe is provided with a compliant interface to compensate for slight variations in the rigid bond pad heights on the IC device and variations in the height of the probe contacts. The object in Claim 60 is to cover an electronic system wherein more than one assembly is used to test an item..

A "probe" is defined as "a pointed metal tip used for making electrical contact with a circuit element being checked." [*Webster's Ninth Collegiate Dictionary* (1983) page 937.] The present invention is directed to structures useful as probes for testing of electrical interconnections to integrated circuit devices and other electronic components. Referring to Figures 1 and 2, for example, the probe (10) comprising the connecting elements 13, 14, 15 and 16 between the test substrate (11) and the integrated circuit device (30). Any of the drawings e.g. Figures 1, 2, 4, 5-7, 10, 12, 14, 15, etc., which depict the connecting elements illustrate the "probes." This description of the term "probe" is consistent with the text in the specification found on page 14, lines 1-7. The drawings cited are relevant as they depict a "plurality" (i.e., more than one) of probes.

The "plurality of probes" is depicted also in Figure 14 as comprising elements 13, 14, 15 and 16. These drawing is pertinent as it depicts a "plurality" (i.e., more than one) probe.

The Examiner is respectfully requested to reconsider his rejection of Claims 34, 35 and 51 under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,225,777 to Bross, et al.in view of Beaman (5,371,654). In response to the rejection, Applicants have more clearly defined the invention as submitted in this amendment.

The Bross, et al. system is different from Applicants' invention. In Bross, et al., elongated wire 40 is not a bonded free-standing wire inserted between the layered sheet. Applicants use a ball-bond contact mechanism which is totally different. Applicants have a flap to control the movement of the probe in the two or three dimensional planes. Bross, et al. rely on the buckling of their wire to move in the vertical direction.. Bross et al. have difficulty controlling the movement of the contact in the XY plane through their buckling of the system. The benefit of Applicants' invention is that their wire always moves in the same direction so that there is predictability in the movement of their wire and contact. The wire in Bross, et al. can go in either direction and the direction of contact is always unpredictable. The contact position accuracy of the Bross, et al. is poor.

The structure of Bross, et al. is totally different from the article presently claimed in Claim 1. Bross, et al. do not disclose a sheet (20 - Figure1) which contains the cantilevered flats which can independently move up and down. Further the reference does not disclose the claimed protuberances (i.e., the ball shaped, etc. probe tips bonded to the fan out wiring and ideal for a wiping interface). The elements missing in Bross have been positively recited in the rejected claims.

Beaman, et al. disclose a three-dimensional interconnection package. They do not disclose the cantilevered flats which can independently move up and down, as presently claimed by Applicants. There is no basis to combine the references cited.

The Examiner is respectfully requested to reconsider his rejection of Claim 50 under 35 U.S.C. 102(b) as being anticipated by United States Patent 5,371,654 to Beaman, et al.

Beaman, et al. disclose a three-dimensional interconnection package. They, like the other prior art cited, do not disclose a sheet (20 - Figure1) which contains the cantilevered flats which can independently move up and down. This feature is essential to the advance in the art.

The Examiner is respectfully requested to reconsider his rejection of Claim 50 under 35 U.S.C. 102(b) as being anticipated by United States Patent 3,795,037 to Luttmner.

Luttmner discloses an electrical connection package wherein the elongated connectors are embedded in a block of elastomeric material. He does not disclose a sheet (20 - Figure 1) which contains the cantilevered flats which can independently move up and down. This feature is now claimed by Applicants.


The references to Beaman, et al. and Luttmner do not disclose each and every element found in the claims of Applicants' application. Thus the rejection of Claim 50 is inappropriate.

Applicants' attorney has attempted to revise the unallowed claims so that they clearly distinguish over the references cited. If the Examiner believes that there are other modifications to be made to the other claims which would result in their allowability, Applicants' attorney would be willing to discuss the matter with the Examiner by telephone at a mutually convenient time.

Applicants will wait for the Examiner's Advisory Action before cancelling the unallowed claims. It is Applicants intention to allow claims 1 - 4, 7-31, 33 46 - 49 and 52 - 58, 60 to pass to issue. They will act promptly as soon as the Advisory Action is received.

In view of the arguments and modifications to the claims, allowance of this case is warranted. Such favorable action is respectfully solicited.

Respectfully Submitted,



Thomas A. Beck

Registration No. 20,816

26 Rockledge Lane

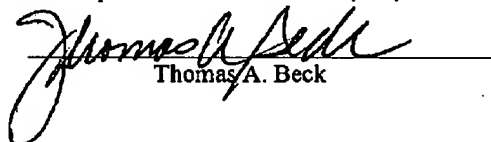
New Milford, CT 06776

Telephone (860) 354 - 0892

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being transmitted by facsimile on the date shown below to the United States Patent Office Examiner responsible for this case at (703) 872 - 9306.

July 8, 2004

  
Thomas A. Beck